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PATENT APPLICATION No. 10/565,765
PRELIMINARY AMENDMENT
US NATL. PHASE OF PCT/AT2004/000263

ATTORNEY DOCKET No. 03872-0033US1

Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-11. (canceled)

12. (new) A method for providing oxygen in a concentrated form as a reaction partner for combustion or oxidation reactions, said method comprising selectively absorbing oxygen from a gaseous mixture into a liquid medium and releasing the oxygen from the liquid medium, wherein the liquid medium comprises at least one ionic liquid, wherein said ionic liquid has a reversible, and, with regard to nitrogen, a selective oxygen-uptake capacity, said liquid medium maintained at a temperature above the melting point of said the ionic liquid.

13. (new) The method of claim 12, wherein the gaseous mixture is air.

14. (new) The method of claim 12, wherein an ion of the ionic liquid comprises a functional group with selective affinity for oxygen.

15. (new) The method of claim 14, wherein the ion is a cation.

16. (new) The method of claim 14, wherein the ion is an anion.

17. (new) The method of claim 12, wherein the liquid medium comprises perfluorinated residues.

18. (new) The method of claim 12, wherein absorbing oxygen from the gaseous mixture is carried out by passing a finely divided stream of air into the liquid medium.

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19. (new) The method of claim 12, wherein absorbing oxygen from the gaseous mixture is carried out by contacting the gaseous mixture and the liquid medium in a trickle-bed contactor.
20. (new) The method of claim 12, wherein absorbing oxygen from the gaseous mixture is carried out by contacting the gaseous mixture and the liquid medium with a porous membrane in a membrane contactor.
21. (new) The method of claim 12, wherein the absorbed oxygen is released from the liquid medium by passing combustion exhaust gases through the liquid medium.
22. (new) The method of claim 12, wherein the absorbed oxygen is released from the liquid medium by exposing the liquid medium to microwaves.
23. (new) The method of claim 12, wherein the absorbed oxygen is released from the liquid medium by catalytically degassing the liquid medium.
24. (new) The method of claim 12, wherein the adsorbed oxygen is released from the liquid medium by increasing the temperature of the liquid medium.
25. (new) The method of claim 12, wherein the absorbed oxygen is released from the liquid medium by decreasing the pressure of the liquid medium.